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New species of Geometridae, No. 3.

By REV. GEO. D. HULST.

Ephyra plantagenaria, sp. nov. Expands 21 mm. Palpi very short, black with scattered white scales becoming thus gray beneath; front black; thorax and abdomen light gray, the abdomen with indistinct annulation; of lighter color, often white. Fore wings light gray, more or less overlaid with dark gray, forming indefinite lines and bands. The basal space is often dark gray, and the lines are three, each well determined on costa, indefinite, dissolving into the ground color as they cross the wings; the first is finest, the outer broadest, the latter band like with heavy cloud at middle and near inner margin, all very much angulate wavy across the wings. An indeterminate submarginal line or shading and a marginal line of black points; annulate spots faintly discerned on middle line. Hind wings like fore wings but wanting the first line; annulate spot faintly evident. Beneath, light cinereous with outer line evident, as also annulate spots.

7♂, 8♀, Tex. Ariz. Coll. Lintner, Neum. Hulst.

Acidalia obluridata sp. nov. Expands 19 mm., Palpi and head reddish brown; Wings whitish washed with light ochreous, which is somewhat darkened into crosslines; over the wings is also a peppering of black scales, very much scattered but more numerous on the crosslines, and forming on fore wings a cloud at middle of outer third, and at inner margin, and on hind wings a somewhat distinct intramedian line. On fore wings, the first line is basal, bent, the next extradiscal, oblique, and on the outer third, closely together and parallel, are three others, in part coalescing, dentate or wavy, showing white dentate space between; apart from the basal line the hind wings correspond; hind wings somewhat angled; discal spots small black; a row of black points on each wing just within margin, and an alternating row on fringe, faint; fringe light ochreous. Beneath whitish, without the ochreous tinge, and with the black run into the cross lines, which thus become quite marked especially outwardly.

1♀ Rockledge, Fla., Coll. Hill.

Acidalia volucrata, sp. nov. Expands 19 mm. Palpi, head and thorax light ochreous, rather dull and blurred; abdomen same color, with a brownish cast

Fore wings, dull olive ochreous at base and for one-third the space of wings, then a purple brown band, slightly curved outward on inner side, with two deep sinuses on outer side; beyond rusty ochreous with a purple brown wavy dentate cross line at middle of space; a purple brown submarginal band, and a line of almost coalescing spots of same color, somewhat darker, rounded outwardly, just within margin. Hind wings olive ochreous washed with purple on inner third and rusty red outwardly, the purplish being most distinct on outer part of first and third, and forming an indistinct continuation of band on fore wings. Margin narrowly purplish brown. Beneath purplish ochreous, fringe purple, outer lines faintly evident, as also band on fore wings and discal spot on hind wings.

1♂, Mo. Coll. Mrs. C. H. Fernald.

Acidalia dataria, sp. nov. Expands 18 mm. Palpi and front snuff ochreous; thorax and wings light ochreous washed with snuff color; abdomen somewhat lighter; wings somewhat speckled with black scales, and with one broad even dark brown line in middle. A basal line of black points and also an outer one, the basal sometimes joined by a fine line, these lines present and continuous on the hind wings; a line of marginal black points also present on all wings; discal spots small, light ochreous, annulate with dark brown. Beneath light ochreous, the outer line of points showing, and joined in a fine dentate line.

2♂, 1♀, Cal., Coll. Neumoegen, Hulst.

Acidalia ancillata sp. nov. Expands 24 mm. Palpi ochreous, black at tip; front black; vertex, thorax, abdomen and wings light cinereous, abdomen somewhat annulate with dark gray. The wings are finely speckled with black points, giving a smoky cast to the wings; fore wings marked with three distinct lines, basal, extra discal and outer; the basal bent, the others oblique, straight, wavy, a little nearer together at costa than at inner margin; all lines are fuscous black, inclining to an ochreous tint sometimes; the outer one is very distinct and is heaviest. There are also submarginal clouded lines, wavy, and a line of marginal black spots, generally very sharp and distinct; discal spots black, distinct. Hind wings as fore wings except that the basal line is wanting. Beneath white, lines distinct; the surface, especially on the basal half, washed with smoky fuscous almost or quite covering the surface on the front wings. Legs cinereous blackish in front on fore and middle, all becoming sooty ochreous on tarsi.

2♂, 3♀, Sierra Nevada Mts., Cal. Ariz.

Close to *A. quinquelineata* to which in direction the lines very much correspond. But the wings are very much more pointed at apex, much more extended, much less rounded on outer margin.

Acidalia elimaria, sp. nov. Expands 31 mm. Tongue ochreous, palpi, head, body, and wings, pure white, wings rather silken and glistening; antennae dark fuscous very strongly pectinated; the fore wings are crossed by three fuscous lines, the two inner oblique, straight, the outer parallel with outer margin, none reaching costa; a faint submarginal line; margin narrowly fuscous. Hind wings without the basal line, middle line straight, outer slightly rounded, submarginal line distinct, margin fuscous. Beneath white, with lines faintly showing; margin fuscous, costa speckled with black. Fore and middle tibiae and tarsi fuscous or fuscous cinereous, hind legs with tibiae very long not very much swollen.

4♂, Col. Coll. Hulst. Near to *A. ordinata* Walk., differing in the

direction of the lines, and in various details of coloration and structure, but having much the same general appearance.

Acidalia quinquelineata, var. *fuscata*, var. nov. Differs from the type form in the more pointed fore wings, the more squammose vestiture, and the coloration which is smoky fuscous gray. It stands in some respects intermediate between *A. quinquelineata* and *A. ancillata*.

1 ♂, 1 ♀, Ariz. Col. Neumoegen, Hulst.

Eois hilliata, sp. nov. Expands 14 mm. Palpi and antennae brownish, thorax, abdomen and wings light brownish ochreous, fore wings narrow, extended though rounded at apex, each wing crossed by a distinct narrow unevenly scalloped plumbeous brown line; on the fore wings this line is very oblique with two considerable indentations inwardly. Beneath as above but with colors softened and lines indistinct.

1 ♂, Fla., Coll. Hill.

Eois bonitata, sp. nov. Expands 16 mm. Palpi and front dark brown; vertex, antennae, thorax, abdomen and wings light ochreous; abdomen becoming darker posteriorly; fore wings narrow, extended, with two black cross lines, one basal; rounded, somewhat angulated at middle, the other outer, pronounced at costa, rounded and rather faint across wings; on middle field, below discal spot is a cloud reaching to inner margin, on outer field, two faint clouded lines also a row of marginal cloudy spots; on hind wings the three outer lines, and marginal line are continued, rounded, parallel, wavy, with an inner shade within anal angle; discal spots distinct, black. Beneath lighter with a plumbeous shade, lines very faint, the outer black line most prominent on all wings.

1 ♂, Ariz., Coll. Neumoegen.

Eois labeculata, sp. nov. Expands 14 mm. Head, thorax, body and wings reddish purple. Discal spot on fore wings small, oval, ochreous yellow; a marginal band of same color on all wings, narrowed, almost divided by the purple color at middle of outer margin of fore wings, and on hind wings narrowing posteriorly, and becoming obsolete near anal angle. Below as above with band less yellow; fore and middle tibiae pinkish; hind legs and abdomen ochreous.

1 ♂, Ariz., Coll. Hulst.

Eois ferrugata, var. *russata*, var. nov. Differs from the type form in being of a rusty ochreous color; fore wings somewhat purplish at median crossline, and submarginally: middle field almost ochreous; outer line distinct, purple; margin purple; beneath, ochreous, lines faint.

1 ♂, N. Y., Coll. Hy. Edwards.

Eois eremiata, sp. nov. Expands 20 mm. Palpi and head rusty brown; thorax, abdomen and wings rusty ochreous; lines obsolete or very faint; when evident two in number, the one basal, strongly angulated, the other bent, but nearly straight. Costa and margin pinkish; beneath ochreous, washed with pinkish, uniform in color.

2 ♂, Ariz., Coll. Graef, Neumoegen.

Eois subochreata, sp. nov. Expands 24 mm. Palpi ochreous brown; head ochreous; thorax and abdomen light ochreous; fore wings light ochreous, darker along costa; hind wings very light, almost white; all wings thinly clothed; fore wings with two lines, fine, indistinct, the basal wavy, some rounded; the outer wavy, nearly straight, nearer the inner angle than the apex; on hind wings a single faint line, wavy,

slightly rounded, extra discal; discal spots distinct on all wings. Beneath, uniform very light ochreous; lines and dots very faint.

1 ♂, Coll. Graef.

Pigia multilineata, sp. nov. Expands 24 mm. Palpi, antennae and head light fuscous; thorax, abdomen and wings, smooth glistening white; costa, tinged with fuscous brown, fore wings with two groups of fuscous brown lines, all starting from apex; the first group consists of three lines, of which the inner is the darker parallel oblique, reaching inner margin at middle, the inner one extending across, hind wings near base: the second group consists also of three lines running slightly out from outer margin, the inner the heaviest, and the outer shading broadly towards margin; these continue as four across the middle of hind wing, the inner being replaced by two equally distinct; on the hind wings is an outer group of three corresponding lines, nearly straight, the outer shading gradually towards outer margin; on all wings a narrow fuscous margin; fringe white, fuscous stained outwardly; discal spots minute black; beneath as above lines more diffuse and indefinite with some black speckles basally and along costa.

3 ♂, 1 ♀, Ariz., Coll. Graef, Holland, Neumoegen, Hulst.

Phrygonis auriferaria, sp. nov. Expands 32 mm. Palpi, head, antennae brownish yellow; thorax and abdomen dull yellow; wings golden yellow; on the fore wing on inner two thirds are five lines of small purple spots, the first close to the base, the second and third extra basal, parallel near each other, waved, the outer two, extra discal, near together, parallel, bent outward twice; the spots are between the veins and each surrounds a small golden metallic spot, tumid in the larger ones, the outer third of the wing is much striated with purple, forming on its inner edge a purple band; hind wings with some purple striations on median space; on outer two thirds a purple line, shaded broadly inwardly with purple; this line includes three or four small golden dots; outer space purple yellow, with submarginal line of metallic gold, not tumid; ocellus just anterior to middle, along margin, purple red with metallic gold speckles, edged anteriorly with black; marginal line purplish red; fringes purple. Beneath uniform light ochreous; fringe purple.

1 ♂, Fla., Coll. Holland.

This is an exquisitely beautiful insect, and is one more form revealing the tropical character of the insect fauna of South Florida.

Semiothisa simulata, sp. nov. Expands 34 mm. Palpi fuscous, dark brown at tip; front ochreous brown; collar ochreous brown; front of thorax fuscous; posteriorly, and abdomen light ochreous fawn; wings very even light ochreous fawn, formed by a light ochreous base heavily but finely powdered with fuscous fawn; outer third fuscous fawn, straight margined on inner side, very even in color; discal points on fore wings, lengthened on hind wings, small; hind wings strongly angled. Beneath as above with the colors less even and the light ochre color less finely and completely powdered.

2 ♂, Coll. Graef, Hulst.

Very near *S. praeatomata* Harv. of which it is a possible variety.

Semiothisa metanemaria, sp. nov. Expands 29 mm. Head, antennae, thorax and abdomen light ochreous, the abdomen shaded with dark ochreous at middle of segments. All wings light ochreous, powdered with brown, the fore wings more finely and heavily than the hind wings. On the fore wings are two brown lines, the basal curved at costa, then straight, the outer slightly sinuate, the inner

outwardly, and the outer inwardly edged with white, the outer shading with brown gradually into subterminal space; outer edge falcate below apex, and marked there with a lengthened marginal spot of dark brown. Hind wings with a sinuate extra median line; all discal spots apparent, brown; hind wings strongly angulate. Beneath as above, with colorations generally more diffuse.

4 ♂, 4 ♀, Ariz., Coll. Graef, Holland, Hulst,

Resembles somewhat *Macaria tripliciaris* H. Sch.

Semiothisa mendicata, sp. nov. Expands 22 mm. Head ochreous; collar the same; thorax in front narrowly reddish ochreous, otherwise thorax, abdomen and wings soiled white; fore wings heavily powdered, outwardly some striated with dark brown, a basal line faintly indicated, also an outer line, rounded, sinuate, generally consisting of dark brown points on the veins; hind wings lightly powdered; the outer line faintly suggested; a narrow brown marginal line; all discal spots evident. Beneath as above, but with little powdering or striations; generally the base color is stained with reddish especially along costa.

2 ♂, 9 ♀, Ariz., Coll. Graef, Neumoegen, Hulst.

Semiothisa sublacteolata, sp. nov. Expands 24 mm. Palpi ochreous; head very light ochreous; thorax, abdomen and wings dull white; wings dusted with dark fuscous; two lines on fore wings, the basal faint, the outer bent below costa, then straight, both consisting of black points sometimes joined, outer space on all wings with a dark fuscous clouding; all margins with row of black points; extra discal line of hind wings evident but faint; all discal points distinct, black. Beneath whitish, heavily powdered and clouded with fuscous with a reddish tint; discal spots distinct, black.

2 ♂, 4 ♀, Ohio, Coll. Franck, Graef, Hulst.

Semiothisa tenebrosata, sp. nov. Expands 27 mm. Palpi, head and collar yellow ochreous. Thorax, abdomen and wings even close cinereous, with a dusting of light fuscous giving a smoky shade; the fore wings have three cross lines, the hind wings two, the outer two of the fore wings being continued on the hind wings; these lines are fuscous, fine, equidistant from each other; the first and third being as far distant from the base and outer margin as from each other; all fade away towards the costa. Beneath more coarsely striated, except that there are no striations on inner part of fore wings, while the hind wings have an ochreous tint. Discal spots wanting above, and on fore wings below; distinct, small, black on hind wings below; hind wings well rounded.

5 ♂, 5 ♀, Ariz., Coll. Holland, Graef, Neumoegen, Hulst.

Semiothisa umbriferata, sp. nov. Expands 28 mm. Palpi, head and antennae fuscous ochreous; palpi dark fuscous at tip; thorax and abdomen cinereous fuscous, wings cinereous, more or less washed with fuscous; fore wings with four lines, the first basal, straight; the next, the ordinary basal line, rounded; the next, more diffuse than the rest, just within discal spot, straight; the outer sinuate, strongly rounded outward from costa to vein 3; outer space washed and clouded with fuscous brown; a marginal line of black spots. Hind wings with the outer line of fore wings, an inner one faintly indicated. Margin fuscous brown with marginal, somewhat confluent, row of black spots; discal spots present on all wings, black; all lines somewhat diffuse; inner lines hardly evident; discal spots present.

1 ♂, Soda Springs, Cal. From Mr. Behrens. Coll. Hulst.

Semiothisa inquinaria, sp. nov. Expands 30 mm. Palpi fuscous brown;

head, thorax and fore wings bluish cinereous; abdomen fuscous cinereous, somewhat annulated with light cinereous; fore wings with a geminate band close to base, faint; three other bands, the middle broad black at costa, otherwise fuscous, even oblique; just within discal spot, straight till close to inner margin, then turning at a sharp angle outward; inner line strongly angulated from costa outwardly, till close to middle line then parallel with it, straight to inner margin; outer line geminate angulated outwardly below costa, then sinuate to inner margin; outer space clouded with fuscous; a row of marginal black points; hind wings yellowish cinereous except along inner margin where they are cinereous and powdered and striated with black; margin wavy black. Beneath fore wings cinereous, dashed with fuscous; costa and hind wings with an ochreous tint and striated with fuscous; discal spots above prominent, oval black, slightly pointed with cinereous within; beneath black points; fore wings in form strongly arched on costa, somewhat falcate, hind wings rounded with waved margin.

1 ♂, Cal., Col. Hulst.

Semiothisa octolineata, sp. nov. Expands 24 mm. Palpi and front dull ochraceous cinereous; fore wings with four ochreous lines; the first extra basal some bent; the second discal straight; the third outer obtusely angled beyond discal, then straight; the fourth submarginal straight; fringe dark brown below apex to middle; hind wings with three outer lines; beneath ground color more ochreous than above and the lines much more pronounced and darker ochreous.

1 ♂, Ariz., Coll. Neumoegen.

The insect has on it Mr. Grote's label with the above name, but I am unable to find the description, and Mr. Grote is of the opinion he never described it. If Mr. Grote's description turns up the name will not have to be changed.

Semiothisa delectata, sp. nov. Expands 26 mm. Palpi, head and antennae ochreous brown; thorax, abdomen and wings even light ochreous cinereous; a single black lengthened spot at costa near apex; otherwise unicolorous with an ochreous tinge at base of fore wings; hind wings slightly wavy, with tendency to angulation at middle. Beneath as above, without the costal apical spots.

1 ♂, Col. Coll. Hulst; allied to *S. ocellinata*, Guen.

Semiothisa graphidaria, sp. nov. Expands 22 mm. Palpi ochreous fuscous; head fuscous in front cinereous at vertex; abdomen fuscous ochreous; wings white with dark fuscous shadings and black lines; lines are two, fine, black, the basal bent below costa, waved; the outer extra discal much bent from costa outward to beyond discal point then turning inward running nearly parallel with outer margin, wavy all the distance; the basal and middle fields are somewhat fuscous clouded and there is a fuscous band beyond outer line; discal spot black, and line of black marginal points; hind wings fuscous lighter basally and submarginally; lines of fore wing continued, but faint; beneath light cinereous, basal line heavy on both wings, black; a broad black band beyond outer line on all wings; discal points black.

2 ♂, 2 ♀, Ariz. Tex. Probably not a *Semiothisa* but placed here provisionally.

Marmopteryx morrisata, sp. nov. Expands 30 mm. Palpi very dark brown; head dark fuscous intermixed with black; thorax dark fuscous with collar and patagiae edged with black; abdomen ochreous brown; wings above and below fuscous, thinly scaled; above with color a little pronounced on sub-median vein, and

with two or three spots a little lightened along costa; fringes checkered with light ochreous. Beneath, fore wings with narrow black marginal line, hind wings with obscure black lining to anterior veins, but with a pronounced somewhat wavy black line running from middle of inner margin towards middle of outer margin. The appearance beneath is very like *Tornos*.

2 ♀. Ariz. Coll. Neum. Hulst. Named in honor of Dr. John G. Morris, one of the fathers in American Lepidopterology, who has been my kind friend, and whom, for his personal character and many sided erudition, I greatly venerate.

Marmopteryx annellata, sp. nov. Expands 37 mm. Palpi reddish brown; front fuscous black with some cinereous scales; antennae nearly white at base, soon by intermingling black scales becoming black outwardly; thorax dark brown; abdomen ochreous brown above near base, fuscous towards tip, and annulate with ochreous brown, cinereous below. Wings smooth fuscous with a chestnut violet tinge, which becomes decided on outer subcostal space and in apical region; on costa of fore wings are three brown spots, with ochreous between; from the second there goes to the center of the wing a brown rather diffuse band which there rounds outwardly and returns to costa at third spot, taking thus a horse-shoe shape; fringes cinereous, black at end of veins on fore wings, interlined on hind wings with fuscous; beneath smoky fuscous on fore wings, along costa, and about apex, and on hind wings overlaid with a dusting of fine black and cinereous scales; horse-shoe of fore wings evident, but faint on inner side; a rounded angulated dark extra median line on hind wings; discal spots present on hind wings, white; fore legs cinereous, middle and hind legs fuscous, with some light scales.

3 ♂, 5 ♀, Pacific coast. Col. Neumoegen, Graef, Hy. Edwards, Hulst.

Thamnonoma fascioferaria, sp. nov. Expands 32 mm. Palpi, front, antennae, base of wings beneath, and legs bright yellow ochreous; thorax, abdomen and wings very light ochreous, the hind wings being almost white; fore wings slightly sprinkled with brown to cross band, somewhat more heavily sprinkled on submarginal space; on outer third is a broad dark brown band narrowest at costa, broadest on inner margin. Beneath yellow ochreous; band shown only by a costal and median spot; hind wings with indistinct extra median band; discal spots faint.

1 ♂, 1 ♀, Col. Coll. Lintner, Hulst.

Thamnonoma coortaria, sp. nov. Expands 28 mm. Palpi brown; head very light cinereous, antennae, thorax and fore wings light cinereous, the latter with a purplish tint; abdomen fuscous cinereous; the fore wings are somewhat powdered with black atoms; along the costa are four black spots, the second and third somewhat larger, and all more or less triangular; discal spots lengthened, black, just below second costal spot; outwardly on submarginal space, the wings are broadly ferruginous, fading into the cinereous ground color; hind wings ochreous, except along inner border, were they are cinereous, striated with dark brown, discal spot black; the fore wings broad, rounded. Beneath, fore wings light fuscous ochreous; ochreous and striated with brown along costa; spots faint; hind wings light ochreous; ochreous along veins, strongly striated with ferruginous.

✓ 1 ♂, 2 ♀, Tex. Coll. Hulst. Nearest to *T. subcessaria*, Walk.

Lozogamma famulata, sp. nov. Expands 30 mm. Above dark fuscous; the abdomen narrowly annulate with light fuscous; the hind wings lighter towards base; discal spots black, diffuse, not very apparent; fore wings with a submarginal line of small white spots most feeble at middle, confluent near inner angle; hind

wings with a corresponding line, faint or obsolete anteriorly; beneath cinereous, heavily washed and clouded with fuscous; an extra discal sinuate darker line on both wings, outer line as above; marginal line very dark, discal spots a little more prominent than above.

1 ♂, Hamilton, Can. (J. Alston Moffat), Coll. Hulst.

This insect seems to be nearest *L. disconventata*, Walk.

Lozogramma graefiaria, sp. nov. Expands 36 mm. Antennae and head fuscous ochreous; thorax and abdomen same color, a shade lighter; fore wings light ochreous fawn with an olive tint; veins light ochreous; four brown marks along costa, the first basal, the second discal, the third further out, the three dividing costa into four nearly equal parts: the fourth is nearly apical, and is much the largest; a crossline starts from the first spot, faintly brown without, ochreous within, runs obliquely outward towards the middle of inner margin; there it bends, the ochreous portion touching margin, and returns, (as outer line), obliquely outward, reaching costa just within apex; on turning the brown comes on the inner side; wings quite falcate; hind wings lighter than fore wings, without lines; discal spots on all wings black, those on the fore wings especially prominent; beneath light even ochreous, discal points as above; the extreme apex of the fore wings black.

1 ♂, Ariz. Coll. E. L. Graef, for whom it is named. It is a curious insect in appearance, and I am uncertain under what genus to place it. I put it in *Lozogramma* provisionally, though it probably does not belong there.

Tornos candidarius, sp. nov. Expands 26 mm. Head ochreous; antennae white; body and abdomen white; wings silky white, unicolorous; beneath white, the hind wings slightly, the fore wings considerably washed with fuscous.

1 ♂, Ariz. Coll. Hulst.

Tornos rubiginosarius, var. *cinctarius*, var. nov.

Palpi and antennae black; head, thorax, body, and wings reddish brown; fore wings with three black lines, the basal rounded, wavy, distinct; the middle intradiscal, faint except at costa, rounded; the outer extradiscal, distinct, sharp, rounded above the large black discal tuft, then bent to inner margin; outer space with a submarginal line of small rather indefinite white spots; a dark cloud at inner angle; hind wings with oval black discal spot and rounded sinuate extradiscal black line; beneath as above, but with color lighter, and lines much fainter.

Tornos rubiginosarius, var. *abjectarius*, var. nov. This is in color a dark smoky brown, almost uniform on thorax fore and hind wings to the submarginal space, and there some darker, but even; discal dots on fore wings black, a submarginal row of faint light colored spots, and the marginal line black, broken; abdomen with a dorsal row of black spots.

Tornos dissociarius, sp. nov. Expands 38 mm. Palpi black; head cinereous; collar black; thorax smoky cinereous; abdomen light cinereous on first segment, this followed by a jet black line, the rest fuscous; fore wings fuscous cinereous, washed somewhat with dark fuscous and blackish; two narrow black lines start very obliquely from the inner margin near the base, and run with an uneven waviness towards a point on the outer margin just above the middle, then turn back before reaching the margin, and forming a deep rounded sinus reach the costa not far from apex; the lines are very near each other, and closely parallel; hind wings light cinereous except submarginally, where it is concolorous with the fore wings; from the middle of the inner margin, two parallel black lines run, the outer heavier, which fade away near the middle; beneath light even cinereous; costa of fore wings darker, and lines on hind wings faintly seen.